

# **PUBLICATIONS**

**1996**

# **FIELD DAY REPORT - 1996**

## **TEXAS A&M UNIVERSITY AGRICULTURAL RESEARCH and EXTENSION CENTER at OVERTON**

**Texas Agricultural Experiment Station  
Texas Agricultural Extension Service**

**Overton, Texas**

**April 18, 1996**

**Research Center Technical Report 96-1**

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## SURVIVAL OF 'ALFAGRAZE' ALFALFA UNDER ROTATIONAL GRAZING

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**Background.** 'Alfagraze' alfalfa was drilled into a Coastal bermudagrass pasture in October 1992. Three row spacings (10, 20, and 30 in.) of alfalfa were planted in each of four replicate pastures. Alfalfa-bermudagrass paddocks were rotationally grazed in 1993 (Rouquette et al., 1994 Research Center Tech. Rept. 94-1:93) and 1994 (Rouquette et al., 1996, Research Center Tech. Rept. 96-1:) (Table 1). Grazing duration ranged from 5 to 13 days and rest periods, based on alfalfa regrowth, ranged from 18 to 27 days. Animal performance was not a component of this experiment designed to evaluate stand maintenance of Alfagraze under grazing conditions.

**Research Findings.** On June 5, 1995, all row spacing paddocks (n = 12) were harvested via sickle-bar mower. Harvested forage was hand-separated by species (Table 2). After two previous years' rotational grazing regimen, Alfagraze alfalfa was not sufficiently abundant to be recognized as a stand. The average of two separate individuals' visual rating of alfalfa on June 6, 1995 ranged from less than 5% in the 30" drill-spaced plantings, to 12% in 20" drill spacing, to 19% alfalfa in the 10" drill-spaced plantings. The harvested, hand-separated forage data provided quantitative information of percent alfalfa stands of 4.8, 10.5, and 14.4%, respectively, for 30", 20", and 10" drill width plantings. The visual technique of assessing alfalfa stand proved to be extremely accurate and similar to the harvested samples. Additionally, the more closely spaced plantings of alfalfa resulted in the greatest final percent stand survival of alfalfa.

**Implications.** Alfagraze alfalfa planted into a bermudagrass sod and mechanically harvested to simulate haying conditions continues as a productive stand in its sixth season (Haby et al., 1994, Research Center Tech. Rept. 94-1:47). However, after only two years of rotational grazing regimens in a well-established bermudagrass pasture, Alfagraze was essentially lost as a stand. This experiment would imply some of the following conclusions: (1) Coastal bermudagrass is too competitive to be used as a companion crop with alfalfa in a highly fertile soil; (2) alfalfa stand survival is more dependable under hay harvest regimens rather than under grazing; (3) the rest-graze rotation schedules used were not compatible with stand survival. Producers who want to incorporate alfalfa into their forage system should consider planting alfalfa on clean-tilled areas and harvesting forage as hay. Grazing regimens such as creep grazing or some other methods of low intensity utilization may be some of the only methods to retain alfalfa under grazing in East Texas. Defoliation via grazing during prolonged hot, dry summer months proved to be especially

deleterious to stand survival of alfalfa. Thus, use of alfalfa in sandy soils of East Texas requires more management alternatives than other forages used at the present time.

Table 1. Two-year frequency and duration of grazing Alfagraze.

Year	Dates		Grazing Duration (Days)
	In	Out	
1993	Jun 7	Jun 17	10
	Jun 30	Jul 12	13
	Aug 31	Sep 16	16
1994	Apr 1	Apr 11	10
	Apr 29	May 4	5
	May 31	Jun 13	13
	Jun 29	Jul 11	12
	Jul 26	Aug 4	9
	Aug 30	Sep 7	8
	Oct 4	Oct 7	3

Table 2. Dry matter yield, percent component, and visual stand ratings of Alfagraze alfalfa in bermudagrass.

Item	Row Spacing			SEM <sup>1</sup>
	10"	20"	30"	
<b>DRY MATTER</b>				
Alfalfa (lbs/ac)	266	149	80	16.5
Bermudagrass (lbs/ac)	1652	1382	1696	67.1
TOTAL (lbs/ac)	1918	1531	1776	
<b>COMPONENT PERCENT</b>				
Alfalfa	14.4	10.5	4.8	1.04
Bermudagrass	85.6	89.5	95.2	1.04
<b>VISUAL RATING</b>				
Alfalfa (%)	19	12	4.5	

<sup>1</sup>Standard Error of Mean